

Message

From: Takaba, Richard R [richard.takaba@doh.hawaii.gov]
Sent: 11/25/2015 3:06:59 AM
To: Pallarino, Bob [Pallarino.Bob@epa.gov]
Subject: FW: task #3 – 8 comments
Attachments: RH DFT Mtg Agenda Sec67 with EPA edits 24Nov2015 (003) DOH final.docx

Bob, I think we can send a clean version of this tomorrow. Rich

From: Takaba, Richard R
Sent: Tuesday, November 24, 2015 5:04 PM
To: Frazier, William Mark <william.frazier@doh.hawaii.gov>; Whittier, Robert <Robert.Whittier@doh.hawaii.gov>; Nagashima, Josh <Josh.Nagashima@doh.hawaii.gov>
Cc: Chang, Steven Y <steven.chang@doh.hawaii.gov>; Kwan, Roxanne S <roxanne.kwan@doh.hawaii.gov>; Perry, Thu <Thu.Perry@doh.hawaii.gov>
Subject: RE: task #3 – 8 comments

Ok thank you for the comments, I incorp all and some small things. To see all revisions Show All markup. Ours are mostly bold red Rich

If ok, I will final without Revision notes and send, like a clean version but I think our revisions can still be red

From: Frazier, William Mark
Sent: Tuesday, November 24, 2015 2:46 PM
To: Takaba, Richard R <richard.takaba@doh.hawaii.gov>; Whittier, Robert <Robert.Whittier@doh.hawaii.gov>; Nagashima, Josh <Josh.Nagashima@doh.hawaii.gov>
Subject: task #3 – 8 comments

I omitted to send my task #3 – 8 comments, see below.

1600 – 1645 **Task #3: Identify Chemicals of Potential Concern (COPCs)**

- Review of Existing Data {historic fuel and current}
- Identify COPCs
- Recommend COPCs For:
 - a. Analytical testing
 - b. Parameter inputs into CF&T model
- Sampling and Chemical Analyses Methods: Field and Laboratory
- Deliverable and timeline for Task #3

1645 – 1700

- Review of Action items for Tuesday Dec 1 discussions

Day 3 – Wednesday, December 2, 2015

0800 – 0900 All-Tracks Discussion on Progress

0900 – 1030 Section 6 Task #4: Monitoring Network – Existing and Newly Proposed

- Well Placement Objectives:
 - a. Addressing groundwater flow model data gaps –
 - i. Discussion of the potential regional flow north and mauka of the prison {Discuss alternative flow direction to west}
 - ii. Discussion of the resistance to flow provided by the valley fill
 - iii. Refine modeling boundary condition assumptions
 - b. Addressing CF&T model data gaps (and potentially addressing future releases) –
 - #1 sentinel well location (2-3) in stream fill by H3 with geophysics
 - i. Consider installing sentinel wells between the release and the Halawa Shaft
 - ii. Consider installing sentinel wells between the release and the Moanalua wells
 - iii. Consider additional sentinel wells upgradient of the Red Hill Shaft
 - iv. Consider sentinel well upgradient of the nearby (downgradient) housing
 - c. Evaluate distribution of natural attenuation parameters
 - d. Evaluate aquifer properties and refine geological profiles and model inputs
 - i. Borehole logging, geotechnical soil sampling and testing, and potential geophysical methods (if found feasible)
 - ii. Investigate the extent weathered basalt/saprolite layer that was recommended to be added and considered to the groundwater flow model
 - iii. Better information on the valley fill and its potential effects
 - e. Potential Well Placement
 - {#1 location (2-3 wells) in stream fill by H3 with geophysics}
 - i. Consider northwest of Halawa Prison
 - ii. Consider south of Halawa Industrial Park
 - iii. Consider south of the Facility

1030 – 1045 Break

1045 – 1200 Task #4: Monitoring Network (Continued)

- Potential Well Placement (Continued Discussion)
- Well Construction Details
 - a. Consider potential data use, representativeness, and future use (i.e., extraction, etc.)
- Deliverable and timeline for Task #4

1200 – 1300 Lunch

1300 – 1500 Task #5: Potential Remediation Methods

- Potential remedial alternatives and future use
 - i. Recovery and treatment
 - ii. Bioaugmentation (i.e., bioventing, etc.) {nat attenuation}
 - iii. Expand monitoring network to include new and existing well locations
- Deliverable and timeline for Task #5

1500 – 1515 Break

1515 – 1615 *AOC SOW Section 7 In-Depth Discussion: Objectives and Tasks*

- Overall AOC-SOW Section 7 Objective
 - a. “Monitor and characterize the flow of groundwater around the Facility”
 - b. “Update the existing Groundwater Protection Plan to include response procedures and trigger points in the event that contamination from the Facility shows movement toward any drinking water well”
- Major Tasks to Achieve Section 7 Objective (Interconnected to Section 6)
 - a. Task #6: Update the Existing Groundwater Model
 - b. Task #7: Evaluate Whether to Perform a Tracer Study
 - c. Task #8: Evaluate Potential Remedial Alternatives – Feasibility, Methodologies

1615 – 1645 **Task #6: Update the Existing Groundwater Model**

- Strengths and Limitations of Mathematical Modeling of Red Hill
 - a. Model choice and rationale
 - b. Conduct new modeling effort or build off existing work
 - c. Model Inputs and data needs
- Other Modeling Programs and Considerations
 - a. Freshwater flow only
 - b. Density dependent flow
 - c. Desktop Catchment Water Modeling {per Bob prob of dependability, apparently this is not supported}
- Proposed Uses of the Mathematical Model
 - a. Evaluate placement of new wells
 - b. Set and revise site-specific risk based levels (SSRBLs)
 - c. Evaluating potential remediation alternatives and develop contingency plans
 - d. Provide input to and support the Risk and Vulnerability Assessment (AOC SOW Section 8) for hypothetical scenario considerations

1645 – 1700

- Review of Action items for Wednesday Dec 2 discussions

Day 4 – Thursday, December 3, 2015

0800 – 1000 Task #6: Update the Existing Groundwater Model (Continued)

- Recommended Modeling Efforts
 - a. Extent of groundwater flow model
 - b. Discussion of data obtained since 2010 and other potential model improvements:
 - i. Literature review to verify appropriateness of layer geotechnical parameters
 - ii. New groundwater monitoring well logs (re-evaluate model layers)
 - iii. Consider adding weathered basalt (saprolite) layer above basalt layer
 - iv. Groundwater elevation gauging data
 - v. Revised recharge data (re-evaluate model boundary conditions)
 - vi. Potential well placement
 - c. How will new data obtained during implementation of Section 6 tasks be incorporated into Model
 - i. Stratigraphy
 - ii. Groundwater elevations
 - iii. COPCs analyses
 - d. Discussion of SSRBLs and updated risk assessment
 - e. Basis and consideration of modeling codes/types
 - f. Scenarios to be evaluated
 - g. Calibration/Validation of model
- Interim deliverables and timeline for Task #6

1000 – 1015 Break

1015 – 1200 **Task #7: Update CF&T Model and Evaluate Whether to Perform a Tracer Study**

{We agreed we should do a tracer! Up front not after}

- Update CF&T Model
 - a. Use updated groundwater model (i.e., flow parameter inputs [velocity, direction, dispersion], etc.)
 - b. Contaminant species to be evaluated in model
 - c. Transport assumptions (i.e., solubility, etc.)
 - d. Degradation evaluation and inputs
 - e. Scenarios to be evaluated
 - f. Other model considerations
 - g. Calibration/Validation of model
- Applicability, Feasibility, and Appropriateness of Conducting a Tracer Study
 - a. Valuable input into CF&T model
 - b. Limitations to a tracer study (i.e., implementability, timeframe, etc.)
 - c. Possible tracer study designs
 - d. Improper design can potentially result in a very expensive (in cost and time) failure

1200 – 1300 Lunch

1300 – 1400 Task #8: Evaluate Potential Remedial Alternatives – Feasibility, Methodologies

{add: CSM for small release = nat attenuation, bio vent; for a large release need correctly located wells and sentinel system but hard to remove}

- Evaluate and Recommend Remedial Alternatives Based on Results of Aforementioned Tasks

- a. Initial list of criteria for evaluating remedial alternatives:
 - i. Overall Protection of Human Health and the Environment
 - ii. Compliance with Other Federal and State Requirements
 - iii. Long-Term Effectiveness and Permanence
 - iv. Reduction of Toxicity, Mobility, or Volume through Treatment
 - v. Short-Term Effectiveness
 - vi. Implementability
 - vii. Cost
 - viii. Projected State Acceptance
 - ix. Project Community Acceptance
 - x. Other?

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